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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/665,006

09/22/2003

Tetsuya Shiozaki

Q77349

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EXAMINER
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NWAONICHA, CHUKWUMA O

ART UNIT	PAPER NUMBER
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1621

MAIL DATE	DELIVERY MODE
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01/07/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/665,006	Applicant(s) SHIOZAKI ET AL.	
	Examiner Chukwuma O. Nwaonicha	Art Unit 1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 October 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Current Status***

1. This action is responsive to Applicants' RCE of 29 October 2007.
2. Claims 1-5 are pending.

### ***Request for Continued Examination***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/29/2007 has been entered.

### ***Priority***

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d).

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-5 are rejected because the word "about". The word "about" is not precisely defined in the specification. Therefore the metes and bounds of the claims are unclear. Clarification is required.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

**Claims** 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hunt et al., {US 2,776,996} in view of SUMITOMO CHEM. COMP. LTD, {GB 1,166,961}.

Applicants claim a method for producing a 3-methylthiopropenal in a continuous manner, the method comprising the step of supplying an acrolein and a methyl mercaptan together or sequentially with an acidic compound and a basic compound into a reaction system to react the acrolein with the methyl mercaptan, wherein the basic

compound is used in an amount of about 0.3 mol or less per mole of the acidic compound; wherein all the other variables are as defined in the claim.

**Determination of the scope and content of the prior art (M.P.E.P. §2141.01)**

Hunt et al. teach an improved process for the manufacturing of beta-methylmercapto-propionaldehyde in a continuous (see column 2, line 71-72 and column 3, lines 1-14). The process involves the reaction of acrolein and a methyl mercaptan in the presence of acid-base catalyst. Furthermore, Hunt et al. teach the process wherein the concentration of the base is in excess of the acid as exemplified in column 6, example 6 and 7.

Hunt et al. also teach a process wherein the reactants and the catalyst are added in different order. See column 2, lines 17-24.

**Ascertainment of the difference between the prior art and the claims (M.P.E.P. §2141.02)**

Hunt et al. process for producing a 3-methylthiopropional differs from the instantly claimed method for producing a 3-methylthiopropional in that Hunt does not teach all the limitations of the reaction process, in particular, a process wherein the base catalyst and acid catalyst are previously mixed before reacting with the acrolein and the mercaptan compound.

However, SUMITOMO CHEM. COMP. LTD teaches a process wherein the base catalyst (pyridine) and acid catalyst (acetic acid) are previously mixed before reacting with the acrolein and the mercaptan compound, and a reaction that involves a continuous process. See page 4, lines 40-45. SUMITOMO CHEM. COMP. LTD also

teaches the process wherein the base is in excess of the acid as exemplified in page 4, example 1.

**Finding of prima facie obviousness--rational and motivation (M.P.E.P. §2142-2143)**

The instant claimed method for producing a 3-methylthiopropional would therefore have been suggested to one of ordinary skill because one wishing to obtain 3-methylthiopropional is taught to select the processes of Hunt et al. and SUMITOMO CHEM. COMP. LTD.

One of ordinary skill in the art would have a reasonable expectation of success in practicing the instant invention by reacting an acrolein and a methyl mercaptan with an acidic compound and a basic compound to arrive at the instantly claimed process. Said person would have been motivated to practice the teaching of the references cited because they demonstrate that the process can be varied as desired.

Examiner notes that the variation of reactants/concentration is a common laboratory technique for process optimization and for economic factors. Thus, the variation of the acid/base concentration is a well-known chemical practice to optimize the process efficiency of the system and does not constitute a patentable distinction. Additionally, merely modifying the process conditions such as temperature and concentration is not a patentable modification absent a showing of criticality. In re Aller, 220 F.2d 454, 105 U. S. P. Q. 233 (C. C. P. A. 1955).

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Moreover, all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chukwuma O. Nwaonicha whose telephone number is 571-272-2908. The examiner can normally be reached on Monday thru Friday, 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yvonne (Bonnie) Eyler can be reached on 571-272-0871. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chukwuma O. Nwaonicha, Ph.D.  
Patent Examiner  
Art Unit: 1621

J. PARSA  
PRIMARY EXAMINER

  
1/3/2008

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